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Educational Research Bulletin

The Influence of Kindergarten Attendance on Progress in Grade I[1]

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Opinion regarding the influence of kindergarten varies from the praises of its ardent supporters, who would lead one to suppose that the kindergarten provides a panacea for all human ills, to the obstinate beliefs of its extreme opponents that no good can come out of kindergarten. The chief claim made for the kindergarten is its persistent and beneficial effect upon subsequent school progress. Although this belief has been questioned, little scientific consideration has been given to the possibility of this claim. A few studies of the comparative ages of children who have attended kindergarten and of those who have not have been reported.

One investigation, published almost two years ago, was based upon the comparison of two groups of pupils enrolled in the first five grades, at Oakland and Berkeley, California. The school records of 187 children who had attended kindergarten were tabulated against those of 187 who had not. The author's clearest finding was that the pupils who attended kindergarten were 3.4 months younger than the non-kindergarten pupils.[2]

In a preliminary survey made by the Bureau of Educational Research, introductory to more detailed and protracted study of the relation of kindergarten attendance to subsequent school progress, similar results were obtained. In the fall of 1922, the Bureau of Educational Research, with the cooperation of eight Ohio cities, began the study of its so-called "Kindergarten Project." As a preliminary survey of the field and as a source of suggestive problems, data were gathered regarding the pupils enrolled in grades I, II, and III in September, 1921. These data included date of birth, teacher's rating, and length of kindergarten attendance for each of the 6,955 pupils included in this preliminary survey.[3] The evidence of this rather rough investigation was similar to Mr. Peters' conclusion. In fact, the advantage shown in Table I by the age medians for these grades is in excess of his figure, for it varies from 4.8 to 6 months.

TABLE I. MEDIAN AGE OF THE TWO GROUPS

Grades	K'n'g	Non-K'n'g	Difference in Favor of K'n'g
I.....	7.3	7.7	.4
II.....	8.4	8.8	.4
III.....	9.3	9.8	.5

The portion of the kindergarten study to be reported in this paper is concerned only with the pupils who entered school in September, 1922, and

(1) A partial report of Project 3 of the Bureau of Educational Research, Ohio State University.

(2) Peters, W. J. "The Progress of Kindergarten Pupils in the Elementary Grades." *Journal of Educational Research*, 7:117-26, February, 1923.

(3) "Project 3: Kindergarten Project." *Educational Research Bulletin*, 3:143, 153, April 2, 1924.

will be limited to their grade-one records. There were, during the year, some twenty-five hundred pupils enrolled in the grade-one groups in the eight cooperating cities. Since only those pupils for whom complete data were recorded have been retained for the purposes of this report, the total given in Table II is but 1,596. The pupils were arranged—as were those in the preliminary survey—in two groups, those who had attended kindergarten and those who had not. Each city's total for these groups, together with a combined city total, is given in Table II. It is pertinent here to mention that all subsequent medians which appear in this report were computed for the groups which are given in this table.

TABLE II. THE NUMBER OF PUPILS FROM THE COOPERATING CITIES LISTED IN KINDERGARTEN AND NON-KINDERGARTEN GROUPS

CITIES	K'N'G			NON-K'N'G			CITY TOTAL
	Boys	Girls	Total	Boys	Girls	Total	
Athens	22	21	43	23	18	41	84
Cleveland Heights	73	62	135	14	17	31	166
Elyria	10	7	17	13	7	20	37
Fremont	33	35	68	3	7	10	78
Hamilton	73	84	157	171	169	340	497
Lakewood	143	128	271	30	31	61	332
Lockland	23	24	47	8	6	14	61
Portsmouth	45	49	94	134	113	247	341
	422	410	832	396	368	764	1,596

The conclusion based upon the difference of the median ages for these two groups is similar to the conclusions of the earlier investigations; again the difference is in favor of the kindergarten group, although in this instance the advantage is less. June 30, 1923, was used as the date of reference in computing the median ages of the two groups. From Table III it appears that the median age for the kindergarten group was 7.1 years, while that of the non-kindergarten group was 7.3 years. Thus, by computation the pupils in the kindergarten group were on the average .2 of a year, or 2.4 months, younger than the pupils in the non-kindergarten group. This advantage in age is one month less than Mr. Peters' figure, and at least 2.4 months less than the age differences shown by the preliminary study. These differences may have been influenced by one or both of two factors: first, the grade-one group here considered was selected in terms of a number of criteria from a much larger group; and second, the range in this instance is limited to one grade. The selection of the 1,596 pupils reported upon in this study was based upon two criteria—an intelligence-test score and the score on the Pressey Second-Grade Attainment Test—in addition to the three criteria already used in the preliminary study, namely, age, kindergarten attendance, and teachers' rating. These additional criteria required that the pupil be present on two special days upon which the tests were given. The original enrollment in the grade-one groups of these eight cities included more than 2,500 children so that the final group upon which these computations are made was at least one thousand less. It is altogether likely that among the thousand pupils who were eliminated because of insufficient data, there were many who attended school irregularly and in all

likelihood because of their irregular attendance were old for their grade. Whether the kindergarten or non-kindergarten children were the more irregular awaits further study of our data. The second factor, that of range, should be mentioned because five grades were considered in the Peters' study and three grades in the preliminary investigation made by this Bureau, while but one grade is considered here. It may be that when more than one grade is included the age difference is increased.

TABLE III. MEDIAN AGES OF THE PUPILS IN THE KINDERGARTEN AND NON-KINDERGARTEN GROUPS

	K'N'G		NON-K'N'G		TOTAL
	Boys	Girls	Boys	Girls	
Athens	7.2	7.1	7.5	7.5	7.2
Cleveland Heights	7.0	6.9	7.0	7.0	7.0
Elyria	7.2	7.1	7.4	6.9	7.2
Fremont	7.0	7.1	...*	6.9	...
Hamilton	7.1	7.1	7.4	7.4	7.3
Lakewood	7.2	7.1	7.3	7.3	7.2
Lockland	7.2	7.4	7.5	6.9	7.3
Portsmouth	6.8	6.9	7.0	7.1	7.0
Total	7.1	7.1	7.3	7.3	7.2

* No median has been computed throughout this report because the number was so small.

During the fall of 1922, soon after these pupils had entered grade I, they were given the Pressey Primary Classification Test. This is an intelligence test prepared for pupils of grades I and II. It is a picture cross-out test in which the pupils are directed by the examiner to cross out certain portions of each picture. Since this test requires no reading and since the pictures used are simple outline drawings, the test easily lends itself to use with first-grade groups. The median intelligence ratings for the kindergarten and non-kindergarten groups of each city are given in Table IV. Since these tests were given in November, 1922, the median age of each group was approximately six years six months, the age for which the norm is estimated. With the exception of Fremont the city norms of the kindergarten group all exceed the test norm for six years of age, which is 35.[4] Four of the city medians for the non-kindergarten group exceed the six-year standard, one approximates it, and the two others are slightly less, while the Fremont median is omitted, because the number enrolled in the group was too small to validate the median.

TABLE IV. MEDIAN SCORES OBTAINED BY EACH GROUP IN PRESSEY PRIMARY CLASSIFICATION TEST

	K'n'g	Non-K'n'g	Total
Athens	44.7	33.2	40.4
Cleveland Heights	63.2	57.5	62.3
Elyria	35.0	40.0	37.7
Fremont	29.0	....	....
Hamilton	41.2	37.1	38.5
Lakewood	39.3	37.8	39.0
Lockland	35.7	34.0	35.3
Portsmouth	35.8	34.9	35.1
Total	41.1	37.0	38.8

The central tendency of the kindergarten group exceeds the six-year norm by 6.1 points and the median of the non-kindergarten group by 4.1 points. Since the six-year norm for this test is 35 points and the seven-year, 47 points, the progress for the intervening year in this test is reckoned at 12 points. Thus, although the medians of both groups exceed the six-year norm, the median of the kindergarten group exceeds that of the non-kindergarten group by more than one-third of a year, or the equivalent of almost five months of mental age judged by this test.

Late in May, 1923, these first-grade pupils were given the Pressey Second-Grade Attainment Scale. This is a battery of short tests—a spelling test,

(4) Pressey, L. C. "The Primary Classification Test." *Journal of Educational Research*, 9:308, April, 1924.

one in speed of reading, another in the recognition of words, and the fourth in arithmetic—prepared for second-grade pupils. The city medians in this test are given in Table V. In this case the advantage is to the credit of the non-kindergarten group. Neither group, however, reached the II-B norm given by the author of the test, which is 37. This norm, however, is computed for the median chronological age of seven years ten months, an age which would

TABLE V. MEDIAN TOTAL SCORES OBTAINED ON THE PRESSEY SECOND-GRADE ATTAINMENT SCALE

	K'n'g	Non-K'n'g	Total
Athens	46.3	35.0	42.6
Cleveland Heights*	20.2	16.5	19.5
Elyria	32.5	36.0	35.0
Fremont	19.6	....	....
Hamilton	47.7	38.5	41.7
Lakewood	29.8	32.8	30.5
Lockland	34.2	33.3	34.1
Portsmouth	37.1	36.1	36.4
Total	34.3	35.9	35.1

* Scores are low because the pupils were unable to take the spelling and arithmetic tests.

be attained by these groups during the next school year.

In Table VI the medians for the two groups in each of the four sub-tests of the attainment scale are listed. The kindergarten group exceeds the non-kindergarten group in *Speed of Reading* and *Recognition of Words*, both of which are reading tests. This agrees, though not emphatically, with the conclusion of Mr. Gard in an article which appeared in this *Bulletin* in which he said, "The evidence at hand would seem to indicate that kindergarten training has a positive influence on achievement in silent reading."[5] Regardless of these advantages for the kindergarten children the non-kindergarten group excels slightly in *Spelling* and quite definitely in *Arithmetic* with the result that the non-kindergarten group exceeds the kindergarten group in the test of achievement.

Teachers' ratings in scholarship were obtained for these pupils at the close

TABLE VI. MEDIAN RATINGS IN THE FOUR SUB-TESTS OF THE PRESSEY SECOND-GRADE ATTAINMENT SCALE

	Spelling	Speed of Reading	Recognition of Words	Arithmetic
Kindergarten	4.3	10.2	12.4	7.4
Non-Kindergarten	4.5	9.4	10.5	11.1
II-B Norms	4.0	10.2	10.1	....*

* The norm in arithmetic is omitted because the author's norms are given in terms of the two types of problems which appear in the test, namely, addition and subtraction. She suggests, however, that a provisional norm may be obtained by adding these. The figure so obtained is 11.3.

of grade I. A five-point scale was suggested for this purpose: *S*, superior; *G*, good; *A*, average; *F*, fair; and *P*, poor. These, for statistical purposes, were converted into a numerical scale in which 5 corresponded to *S;* 4, to *G;* 3, to *A;* 2, to *F;* and 1, to *P*. The medians which appear in Table VII are expressed in terms of this numerical scale. When reading these medians it will be well to remember that 3 or average extends from 2.5 to 3.5, and that the other points of the scale are to be similarly interpreted.

TABLE VII. MEDIAN TEACHERS' RATINGS FOR EACH GROUP IN EACH CITY

	K'n'g	Non-K'n'g	Total
Athens	3.8	2.2	2.9
Cleveland Heights	3.6	3.6	3.6
Elyria	2.8	3.2	3.0
Fremont	3.2	...	...
Hamilton	3.5	2.8	3.0
Lakewood	3.1	3.3	3.1
Lockland	3.0	3.2	3.1
Portsmouth	3.5	3.1	3.2
Total	3.3	3.0	3.1

(5) Gard, Willis L. "The Influence of Kindergarten on Achievement in Reading." *Educational Research Bulletin* 3:138, April 2, 1924.

It, therefore, transpires that, although the medians for each group fall well within the average class, three cities' medians, Athens and Cleveland Heights in the kindergarten group and Cleveland Heights in the non-kindergarten group, fall between 3.5 and 4.5, i. e., are worthy of being rated "good." The remaining cities' medians may be judged "average."

The range of the medians is not wide in either group, nor is there a consistent superiority of the city medians of one group over those of the other. Although there are four cases in which the non-kindergarten median exceeds that of the kindergarten, still the median of the entire kindergarten group is .3 in excess of that of the non-kindergarten group.

In this consideration of the effectiveness (in grade I), of kindergarten attendance, the case for the alleged superiority of the kindergarten pupils is not conclusively proven. The comparison of the median ages of the kindergarten and the non-kindergarten groups, concerned in this study, agrees with the findings of earlier studies' since the kindergarten group is by its median age over two months younger than the non-kindergarten. The kindergarten group begins the year with a superiority in intelligence-test scores equivalent to five months as reckoned by the mental-age norms of the test. The kindergarten group is superior in scholarship when judged by teachers' ratings; but when both groups are judged by an attainment test, the non-kindergarten group shows a slight superiority.

This is a rather unexpected conclusion in view of the other findings in this study and of the prevalent argument used in favor of kindergarten education. Space will not allow in the present instance a detailed analysis of the findings in the Pressey Second-Grade Attainment Test which might throw some light upon the reason for this unexpected variation. This matter must be left for future consideration.

A New Idea in Intelligence Testing

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AND
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NEED FOR TWO DISTINCT TYPES OF GROUP INTELLIGENCE TESTS

Group tests of intelligence are at present being used for two distinct, though related, purposes in the public schools. They are being employed, in the first place, to aid in the readjustment of the individual child to his schooling. Children are grouped into fast and slow sections on the basis of scores obtained in the tests. An occasional child who scores very high is given a double promotion, while a child standing very low in intelligence is put in a special class. In the junior and senior high school, the tests aid in educational and vocational guidance; a child scoring high may be urged to undertake college preparatory work, while a child with a low standing is advised against such a program.

Present group tests perform this function only fairly well. The great difficulty is that they are not sufficiently reliable. It is a serious matter to move a child from one section, class, or grade to another; such action should be taken only on the basis of data

which are highly reliable. Unfortunately, present group tests are not, for the most part, sufficiently trustworthy. Often when two tests are given, they disagree surprisingly[1] on the mental rating assigned to a given child. Various factors are involved. Perhaps the most important element, in making the single scale unsatisfactory as a basis for such readjustment of individual pupils, is the fact that a few children always, because of physical indisposition on the day of the test or some accident, such as breaking a pencil at a critical time in the test, fail to do themselves justice. It is impossible from the single examination to determine on which students an inaccurate rating has thus been given.

A group test of intelligence may also be used for a second type of work, for comparisons of groups. Thus in the survey of a school system, different schools may be compared to find out whether the children in one school are as capable of learning as the children in another school. Such results are really essential, if differences between schools in standing on educational tests are to be fully understood; if the children in a school score low on an arithmetic test this may be due to low average intelligence on the part of the children in that school quite as likely as to poor teaching. The general accuracy of the grade classification in the two schools may be compared.[2] For such group comparisons present scales may be considered reasonably reliable. That they are not used more for this purpose is largely due, the writers believe, to the expense and labor required in such extensive employment of these tests.

Present group tests are then not so trustworthy as they should be for individual diagnosis, but are too expensive and difficult in handling and scoring to be employed as much as they should be for the study of group differences. The present paper reports briefly an effort to remedy these difficulties.

NATURE OF THE CLASSIFICATION-VERIFYING SERIES

The series of tests to be reported consists of four brief scales. The Classification Tests (intermediate test for grades III-VI and senior test for grades VII-XII) were prepared for such group comparisons as have just been mentioned. The two tests which comprise 96 items each are printed on simple, inexpensive four-page folders. These items are of four different types, arranged in cycle-omnibus form. That is, each scale really consists of four tests combined. The first eight questions of the intermediate scale run as follows, and will make the scheme clear.

1. Which is lightest? key feather pencil book
2. Which is the most important part of a baseball game? tickets fence money players
3. Which word means the same as joy? happiness sorrow sadness truth
4. Which number must you add to 6 to get 11? 4 7 5 12
5. Which would you rather have? 2 dimes 3 nickels 1 quarter 10 pennies
6. Which is the most important part of a school? teacher blackboard desks games
7. Which word means the same as sleepy? bored stupid still drowsy
8. Which number is half of 26? 19 13 3 52

The four tests of which the intermediate scale is composed are "Practical Information," "Practical Judgment," "Similarities," and "Practical Arithmetic"—four types of tests which are included in the most widely used intelligence tests, and

(1) See for instance Stenquist J. L., "The Unreliability of Individual Scores in Mental Measurements." *Journal of Educational Research*, 4:347-354 December, 1921, and Guiler, W. S., "How Different Mental Tests Agree in Rating Children." *Elementary School Journal*, 22:134-44, June, 1922.

(2) For examples of such uses of intelligence tests see Cayco, Florentino, and Pressey, S. L. "Three Refinements of Method in School Surveys." *Educational Administration and Supervision*, 7:433-38, November, 1921, and Pressey, S. L., "A Comparison of Two Cities and Their School Systems by Means of a Group Scale of Intelligence," the same journal 5:130-39, February, 1919.

appear to be the most valuable sort of tests now generally employed. In each group of four questions there is one item from each one of these tests; thus questions 4, 8, 12, etc., are the "Practical Arithmetic" test—and so on. This cycle-omnibus form is convenient, since the directions for all four tests can be given at the beginning of the examination, and the pupils given one long working time (for the intermediate test 14 minutes, senior test 16 minutes) instead of a number of short periods each of which is to be timed to the second.

These Classification Tests are well adapted for such group comparisons and extensive survey work as was mentioned above. They are inexpensive[3] and easily given. The examiner only gives the few sentences of explanation at the beginning of the examination and then collects the blanks at the end of the examination (the entire examination takes less than 25 minutes). In fact, it is possible for an examiner to give directions for the test in one room, go on to a second and a third room giving the directions to these classes and then come back, stopping the children and collecting the blanks in each room as the time limit is reached. The tests are easily scored; it is only necessary to count the number of questions for which the correct answer has been underlined (only about two minutes is required to score a blank). The Classification Tests are, in short, a very convenient means for a first somewhat rough measure of the general ability of school children.[4]

For highly trustworthy results on the individual child, however, something more is necessary. For this purpose the Pressey Intermediate and Senior Verifying Tests have been developed. These are two scales similar in organization to the Classification Tests, and equated with them in difficulty; they are not duplicate forms, however, but consist of four other tests, also of known value in measuring general ability. When highly accurate ratings on each pupil are desired the Classification Test is to be given first, and *then a day or so after* (never on the same day) *the Verifying Test.* And *the higher of each pupil's two scores* is to be taken as that pupil's final rating. This is called the "best score"—better than either score alone, or their average.

Evidently on either one of the two test days results might be interfered with by poor physical condition or some accidental circumstance. But it is hardly likely that such circumstances would operate on both days, and hardly conceivable, of course, that accidental circumstances would make a child do *better* than his true ability on one of the days. By dropping the lower of the two scores the most likely inaccurate score is eliminated—and a measure largely freed from such factors obtained. It should be mentioned that this "derived" score is obtained without complicated statistical manipulation, and that the two tests are so inexpensive and easy to use that the method is *not* impracticable.

First Evidence as to the Value of the Method

But now as to definite evidence of the worth of these scales. Their convenience seems obvious. But do they give accurate measures?

Correlations of teachers' ratings regarding ability and Pressey Intermediate Classification Test score average for 1,006 cases in four schools having 31 teachers' ratings were .57. This is about what is usually obtained, in correlating the ratings of one teacher

(3) The blanks sell at $1.25 per hundred including four copies of the "Teacher's Manual"—a single sheet 6 in. by 9 in. having on one side directions for giving, and on the other side directions for scoring and tabulating, norms, and record form.

(4) That the Classification Tests are nevertheless, when compared with other group tests, reasonably accurate instruments for measuring ability will be shown shortly.

with group test scores[5]; and would indicate that for group comparisons and for first rating on individual pupils, the classification tests were reasonably satisfactory. How much does the addition of the verifying test improve the results?

Data so far obtained are meagre—but give findings as follows: Sixteen rooms (571 children) have been tested with both Intermediate Classification and Intermediate Verifying tests, and teachers' ratings obtained. Correlations of Classification Test with ratings averaged .57; with "best scores" the average correlation was .60. Correlation of senior-classification score with pooled results of teachers' ratings and marks for the preceding year averaged .66 (six rooms, 144 pupils); "best score" correlations averaged .77.[6] It seems reasonable to conclude, then, that the best score is a measure of distinct worth—especially valuable in the difficult task of obtaining adequate measures of the general ability of junior and senior high-school pupils. Further data with regard to Verifying tests and "best scores" are being obtained.

(5) For instance, Garrison and Tippett (*Journal of Educational Research*, June, 1922), give correlations averaging .61 between teacher's ranking and Otis Advanced Group Scale and .51 between these rankings and Stanford-Binet mental ages. Varner (same journal, October, 1923, p. 229) obtained a median correlation of .62 between ratings and Haggerty Delta 2 mental ages. Averill (same journal April, 1923) obtained a correlation of .64 for the Otis group test and .36 for the Thurstone with average of *five* instructors' estimates of ability of 59 normal-school students. These comparisons are rough, but will indicate that the Intermediate Classification Test stands up fairly well in such comparison. For data regarding the validity of the Senior Classification Test see footnote (6).

(6) With the average of the two scores the correlations averaged .76 for the senior tests, and .60 for the intermediate tests. The advantage of the "best score" method over the average is that the higher of the two scores is easier to find than the average, and that the "best score" seems least likely to involve occasional extreme errors due to accidents occurring on one test day. Evidence is now being gathered on this point.

New Geography of Ohio

Teachers complain of their inability to get material on the geography of Ohio aside from what is in their text. The Geological Survey has recently issued Bulletin 27 on the Geography of Ohio, for use in schools. It is a finely illustrated volume of 137 pages, and contains chapters on such topics as surface features, climate, agriculture, mineral resources, and transportation. While the work is intended primarily for teachers, it may be used by the older boys and girls in elementary and country schools. To look at the illustrations alone will increase the knowledge of most people. This work should be in the hands of every teacher of geography in Ohio and also in every school library. Bound in cloth it sells for 75 cents, stamps not accepted. Address J. A. Bownocker, state geologist, Columbus, Ohio.

The Cleveland Educational Research Club is a type of organization which many cities overlook. This club meets regularly and discusses problems which have direct relation to everyday school procedure. At the November 14 meeting, the following program was given in two sections.

Section A

"Racial Differences in the Results of Psychological Testing," Dr. Bertha M. Luckey, *Psychological Clinic*

"Teaching English Literature by the Laboratory Method," Miss Mabel A. Kimber, *Glenville High School*

Section B

"Anticipating Future Needs in Building Schools," Mr. G. E. Irons, *Division of School Housing*

"A Study in English Connectives," Miss Lydia M. Schwegler, *Longwood Commerce High School*

Many superintendents have ordered consignments of the special number of the Bulletin, "Remedial Arithmetic," for use in their teachers' meetings. Because of the great demand a second issue has been printed. Copies may be obtained at ten cents each from the Bureau of Educational Research, Ohio State University, Columbus.

New Tests

New devices and methods for teaching beginning reading always have their enthusiastic supporters and their energetic opponents. In few instances, however, is it possible, with the earliest description of such new devices or methods, to report scientific and authentic evidence of their value.

The Picture-Story Reading Lessons just published by the World Book Company are but the Detroit Practice Tests in Reading presented in a more pretentious and elaborate form. The Detroit Practice Tests were devised by Nila B. Smith and S. A. Courtis some four or five years ago and were used in some of the first grades of Detroit during the first semester of the school year 1921–22. In the March, 1923, issue of the *Journal of Educational Research*, Miss Smith reports in detail the use of these practice tests in the teaching of reading, and a summary of this article will serve as an excellent introduction to this new method of teaching beginning reading. In the investigation just referred to, Miss Smith contrasted an experimental group of 180 beginning first-grade children with an equal-ability control group of 180 children, who were taught reading by the usual method. The experimental group was taught to read by the use of the Detroit Practice Tests in Reading. The investigation was scientific in detail; the Detroit Vocabulary Test was given to the pupils in both groups at the beginning of the experiment, and five standard reading tests were administered at the close. Each group started with zero ability in reading, since neither group obtained scores on the vocabulary test, but at the end of the period of investigation, the scores on the reading tests made by the experimental group far exceeded those of the control group. A less exact, but nevertheless interesting, index of the greater achievement of the experimental group during this period was shown by the amount of reading done. The number of books read by the experimental group ranged from two to thirty-two, while that for the control group ranged from less than one book to four books.

The Picture-Story Reading Lessons, the revised form of the practice tests, are so arranged that a child learns to read by engaging in an interesting activity, in which it is necessary for him to follow printed directions. The child makes his own reading book by cutting out and coloring figures and pasting them upon "frames." The directions tell clearly how the work is to be done. A variety of material is necessary for the successful use of this method, these include a lesson pad, story book, dictionary, and the teacher's manual. A strong craft envelope is prepared to hold each child's material. A package of labels for class use during the early lessons are prepared for the teachers. By the use of the dictionary, the child is able to read the directions and fill in the "frames," with the suitable "cut-outs." The teacher's manual describes the method and the different steps of the process in considerable detail. By means of these different materials, the child, after the first few lessons, teaches himself to read the words which are used in the story book and on the frames, for they also appear in the illustrated dictionary.

Two purposes for these lessons are alleged by the authors. The first of these is "to develop in the child personality, character, and intellectual power by arousing in him a desire to accomplish ends, and ability to judge the results of his efforts by standards which he has at hand, and the joy of accomplishing the ends sought. The second aim is to develop an initial ability in reading. The material teaches the child the real purpose of reading, gives him a basic vocabulary of 260 words, and considerable practice in silent as well as oral reading.

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The Classroom Teacher and Educational Research

Teachers and educators generally have a feeling that educational research is the sacrosanct privilege of educational experts. It is true that there are many educational problems the investigation of which requires large numbers of children and great expenditures of money. These are only possible to persons working in the research bureaus of the universities or of large school systems and under favorable financial conditions. To this type of research the expert must bring an extensive knowledge of statistical procedure and wide experience and training in the interpretation of results. Although these opportunities and qualifications are not the possessions of every educator, still there are simple problems, sadly in need of solution, which lie at hand in every schoolroom. Some of these at least the individual teacher can hope, with some knowledge of research procedure, to attack. Many of these problems may be more satisfactorily studied by the classroom teacher under classroom conditions than by the educational expert in the artificial conditions which may arise, when a stranger carries on an experiment in a classroom.

This is by no means a novel suggestion, for Superintendent Washburne has for several years been supervising research problems which are being carried on by the classroom teachers in the schools of Winnetka. An account of one of these investigations made by the first- and second-grade teachers was reported in the February number of the *Elementary School Journal*. These teachers were anxious to know what phonograms are most useful to children. They carried out several elaborate word-counts in primers and first and second readers and thus determined the phonograms which have the greatest frequency. Mr. Washburne in the December number of the *Journal of Educational Research* lists six other problems which are being carried on by the teachers in the elementary schools of his system.

A less prolonged investigation was recently reported in the special number of this *Bulletin* entitled "Remedial Arithmetic," in which, under the direction of Mr. Stevenson, thirty-two teachers in the Columbus schools investigated the pupils' difficulties in arithmetic, suggested remedial measures, and studied the effects of this remedial instruction. The classroom teacher may also cooperate with educational investigators in the prosecution of their problems. A group of Columbus teachers recently took a course in Methods of Teaching at Ohio State University in which, after theoretical discussion of the various types of instruction, the members of the class worked out lessons of each type and taught them to their pupils in the presence of the investigator and other members of the group who were acting as observers and critics. From the stenographic reports of these lessons, a detailed study of lesson types has been prepared.

Too many attempts have been made to solve the difficulties of the school by theories propounded in the classroom of the university or the school of education, which are logical attempts to meet teachers' problems but

which prove impractical when tried out under actual school conditions.

Although the students of educational research are attacking the problems of the school as rapidly as they can, still these problems are too numerous and too varied to lend themselves to immediate solution. The day when educators will be able to speak understandingly of all the problems of the school and their possible solution is but a distant hope. This utopia will be hastened, however, if the classroom teachers realize that they may have a share in solving these problems by studying in a scientific manner some of the difficulties which they themselves are facing.

On the Firing Line

County Superintendent G. H. Yawberg is proposing a complete reorganization of the Cuyahoga County rural-school system. He suggests the breaking down of boundary lines of more than twenty separate school districts for taxation purposes and the planning of a school-building program. He suggests that all the money raised by school taxes in the county system be placed in a common fund and distributed according to the needs of the different districts. He also recommends a state appropriation of thirty dollars per capita of enrollment for the aid of rural schools. Only slight changes in the state law will be necessary to allow for the administering of this plan.

A meeting of all the boards in the county is planned for early in December in the hope that they will vote favorably on this proposal. Some of the benefits hoped for from this plan are that it would save $2,000,000 in building costs before 1940, and that it would give to the rural districts, schools which would fit into the Cleveland system in case additional territory be annexed to the city. In accordance with his plan, each district will build its own buildings, and raise funds from bond issues. All other funds such as, operation, contingent, and tuition funds would come from the common pool.

Mr. Yawberg and Joseph A. Baer, assistant county superintendent, have made a study predicting a future growth in the various parts of the county. From their study, it is evident that the population will have increased from twelve thousand to approximately thirty-five thousand by 1940 and that several rural districts will have become populous residential areas. The value of county school buildings has increased from $300,000 to $7,000,000 since 1914 and all one-room buildings have been abolished. Mr. Yawberg predicts that before 1940, ten million dollars will have been spent for buildings.

Mr. Yawberg's plans, as stated in the *Cleveland Plain Dealer* on Thursday, November 13, are as follows:

1. The state should pay a minimum of $30 a year for each child enrolled in school, from funds collected by indirect taxation.
2. A county school district tax levy, which together with the amcunt paid by the state should be sufficient to pay all contingent, teacher retirement, and tuition expenses in the several districts.
3. The local district should be required to levy such taxes as may be necessary for building and sinking fund purposes, an arrangement which would permit each district to erect buildings as fine as it cares to pay for.

Superintendent U. L. Light, of Barberton, sent out during Education Week some interesting materials to his public. The following paragraphs show the people the magnitude of their schools and the reason why they

need new school buildings from year to year:

The people of Barberton possibly do not know the magnitude of their educational plant. Early in the morning eleven men, the custodians of the buildings, open the buildings and make them comfortable. Later one hundred and twenty-one teachers arrive and a little later over four thousand school children come on the scene. In order that you may know how steadily the Barberton schools have increased in attendance the following summary of enrollment at the end of the first month of school since September, 1907, is given. (A table was given showing the enrollment for each year since 1907 and the increase over the preceding year.)

If you study the above figures you will see why Barberton has had to erect new school buildings. At this year's rate of increase over last year, it will take only four years to fill a sixteen-room building with forty pupils to a room. If you keep this fact in mind, you will know why Barberton boards of education have been compelled to ask for buildings in the past and if the city keeps on growing, as every one hopes it will, they will have to continue doing so in the future.

Educational Readings

KOOS, LEONARD V. *The trend of reorganization in higher education. SR*, 32:575-86, October, 1924.

Apropos the downward trend of the materials of the college curriculum into the lower school years, Doctor Koos says, "The ancient languages and literatures are the only field in which there was no consistent downward trend. The history of the placement of beginning courses in modern language shows marked downward movement. . . . The subjects added to prescriptions for college entrance—English grammar, geography, arithmetic, algebra through quadratics, plane geometry, ancient history, French, German, and English literature—were all inheritances from college curriculums. The first three subjects continued their downward course until they reached the elementary grades." That there has been no apparent dilution of subjects or courses during the progress of their depression to lower years is shown. On the contrary, some, such as plane geometry and American history, have been notably extended as to content and strengthened as to difficulty.

WOODY, CLIFFORD. *Number of subjects taught by graduates of the University of Michigan who began teaching in the 1922-23 school year, and the amount of academic preparation in the subjects taught. EA&S*, 10:368-84, September, 1924.

This study deals with persons who began teaching for the first time in 1922–23 and who secured their appointment through the Bureau of Appointments at the University of Michigan. On the basis of 146 replies the following generalizations are made. (1) The chances are equal that graduates of the University of Michigan who enter teaching for the first time must begin in cities having less than 5,000 inhabitants. (2) The chances are equal that teachers beginning in cities with less than 5,000 inhabitants will have to teach three or more subjects and that those beginning in cities with more than 5,000 inhabitants will have to teach two or more subjects. (3) The chances are equal that teachers beginning in cities having less than 5,000 inhabitants will have to teach one or more subjects for which they have had no special academic preparation.

VAN DENBURG, JOSEPH K. *The junior high school in smaller centers. ER*, 67:90-93, February, 1924.

This article briefly discusses some of the practical administrative factors of the junior high school with definite suggestions which will be found helpful to administrators who are not entirely familiar with all the literature on the junior high school.

RORER, JONATHAN T. *Present tendencies in high-school mathematics. MT*, 17:22-30, January, 1924.

A cursory discussion of the present tendencies in high-school mathematics as they affect the teacher, the subject matter, the equipment, and the pupil, is given in this article. The author concludes that teachers are better prepared for their work and the textbooks and equipment are very much superior to those of former days. The courses are creating a live interest on the part of the pupils, and the pupils' capacities, aims, and intellectual outlooks are being made the objects of scientific study by our teachers."

NOTE.—The abbreviations used in this number are: *EA&S*, Educational Administration and Supervision; *ER*, Educational Review; *MT*, Mathematics Teacher; *SR*, School Review; and *S&S*, School and Society.

ALLEN, WILLIAM H. *Next steps in educational surveying.* *ER*, 67:78-80, February, 1924.

The writer suggests a survey *credo*, "a daily dozen of reminders," and suggests that all phases of education should be not only constantly self-surveying but be submitted to periodical special surveys.

SHELDON, WILLIAM H. *The intelligence of Mexican children.* *S&S*, 19:139-42, February 2, 1924.

The writer reports the results of testing 200 Mexican children in Roswell, New Mexico, with the Cole-Vincent Group Test. The results show: (1) That the average Mexican child is about fourteen months below the normal mental development of a white child of the same age and school environment. (2) When the results are combined with those reported by other investigators Mexican children are found to be less intelligent than American, English, Hebrew, and Chinese children, but more intelligent than Indian, Slavish, Italian, and Negro.

Paper Covers

DETROIT PUBLIC SCHOOLS. *Primary Arithmetic Games.* Detroit, Board of Education, 1923. 31 pp.

This pamphlet contains forty-nine arithmetic drill games so arranged that all the pupils of a class may actively participate in the drill work simultaneously. The games are of three sorts: development games, games which may be used as practice exercises or for checking purposes, and a combination of these two types.

HANSON, WHITTIER L. *Supervision of Religious Education through Objective Tests and Measurements.* Boston, Boston University, 1924. 13 pp. (Boston University Bulletin V, XIII, No. 24).

In addition to this address given at the celebration of the fiftieth anniversary of the founding of Boston University, there is also a list of tests and scales which may be used in the supervision of religious education.

DETROIT PUBLIC SCHOOLS. *Library Standards.* Part II. Detroit Board of Education. 1924. 39 pp.

This manual presents definite standards for the library of an elementary school, whether the school be organized on the platoon scheme or not. The aim, scope, and use of the library are defined. By these standards the book collection of an elementary school should include not only reference books on all the subjects of the curriculum, but books to be read for appreciation and enjoyment as well.

KEENER, E. E. *Mental Ability of High School Freshmen in Relation to the Problems of Adjustment.* Chicago, Board of Education, 1924. 27 pp. (Research Bulletin No. 1.)

Based upon the scores obtained by 12,169 students entering grade IX in the fall of 1923 at Chicago and the fact that the high-school enrollment in Chicago increased 174% between 1913 and 1923, certain conclusions are drawn: (1) the large percentage of failures in high school indicates that inadequate provision has been made for ability differences; (2) the average mental age of pupils entering high school in September, 1923, was 14 years and 4 months, and the range was from 7 years and 6 months to 18 years and 6 months; (3) the two-year pupils are markedly inferior to the four-year pupils. Although the pupils selecting the language courses have highest ability they fail in the largest proportion.

PITTSBURGH PUBLIC SCHOOLS. *Spelling Survey.* Pittsburgh, Pennsylvania, Department of Research and Measurement, 1924. 48 pp. (Bulletin No. 5.)

The results of a city-wide spelling survey involving nearly 50,000 children in grades II-A to XII-A is reported in this pamphlet. The results given by half grades for both colored and white children, are in turn compared with the standard. Age norms and T-scores are calculated. Comparisons of platoon and non-platoon schools are graphically shown and the relative standing of 127 elementary schools is estimated by index numbers. From these comparisons it appears that the elementary-school children of Pittsburgh spell as well as the average. White children spell better than colored children, and children of the platoon schools spell as well as children of the non-platoon schools.

PACKER, PAUL C., GREENE, H. A., AND HOLY, T. C. *A School Building Program for Cedar Rapids, Iowa.* Iowa State University, Iowa City, Iowa, 1924. 98 pp.

The recent survey made by the Extension Division and the College of Education of the University of Iowa contains a study of the population growth of the city, presents the facts regarding the present school, and, in terms of the possible growth of the city, estimates the probable school enrollment to 1950. The recommendations for the building program are made after careful study of present school conditions and immediate and future necessities. In the Appendix much detailed information is given which illustrates or explains more fully the discussion in the body of the report. Each

school is here discussed in detail describing conditions as they appeared when judged by the Strayer-Englehardt Score Card.

BURRIS, BENJAMIN J. *The County School System. How Organized and Administered.* Indianapolis, Indiana, State Department of Public Instruction, 1924, 56 pp. (Education Bulletin No. 73).

Although prepared for the definite purpose of presenting facts concerning the county form of school organization to the citizens of Indiana, this pamphlet contains pertinent information for all persons interested in school administration. In addition to a description of the county system of organization and the advantages resulting therefrom, the author recounts briefly the practices in the states which use this system. The advantages of the county-school system summarized by this author are that it provides: (1) professional leadership and professional management of the schools, (2) a sound school organization, (3) an efficient business administration, (4) equalized educational opportunities over a larger area and for a larger number of children, and (5) equitable local school tax burdens.

COXE, W. W. *Silent Reading in New York Rural Schools.* Albany, The University of the State of New York Press, 1924. 35 pp. (University of the State of New York Bulletin.)

From the study of the reading achievement in the rural schools of New York the following conclusions are derived: (1) The schools in the rural supervisory districts of New York are attaining a rate of reading more than a grade and a half below the standard usually found in American cities, although these schools are not so much below in ability to comprehend. (2) In both rate and comprehension of reading the one-teacher schools are markedly below the neighboring village schools having four or more teachers. The reading practices in rural and village schools of New York state are summarized from the results of a questionnaire.

WALLIN, J. E. WALLACE. *Classification for Instruction of Mentally Deficient and Retarded Children.* New York City, The National Comimttee for Mental Hygiene, Inc., 1924. 16 pp.

The author brings together a brief history of the organization of classes for subaverage children, and points out some of the guiding principles which should govern the organization of such classes at the present time. He shows that the present tendency is to separate subnormal children into at least two groups for educational purposes. The first, or lowest, the group who should be put in a special class are those with an intelligence quotient of less than 65; while those from about 65 to 85 or 90 should be included in an ungraded class. It is pointed out that the terms "feeble-minded," "mentally defective," "imbecile," and "moronic" applied to children in these special classes should be abandoned, since the legal and social definition of these terms are impossible of accurate application to the children at the time such classification is being made.

WILSON, MARTHA. *Books for High-School Libraries.* Lincoln Library, Springfield, Illinois. September, 1923, 44 pp.

This comprehensive list is most usably compiled with author, title, subject, publisher, and price available at a glance. The author's well-conceived aim has been "to list essential books for students to use in connection with all the work and activities of the high school, but to keep the list within bounds as to number of titles included and cost."

MILLER, A. H. *How to Keep First Graders Busy.* Miller Publishing Co., Oak Park, Illinois. 39 pp.

Professor Miller outlines fifty graphically concrete ways to keep first-grade children busy. Each lesson has a definite contribution to the resources of the teacher in linking educational value with the instinct of play.

Books to Read

ELLS, HARRY W., MOELLER, HUGH C., AND SWAIN, CARL C. *Rural School Management.* New York, Charles Scribner's Sons, 1924. 422 pp.

Prepared by men who have had first-hand experience with the problem they are trying to describe, interpret, and solve, this book presents in an abbreviated fashion a wide variety of topics connected with the rural school. School building standards, suggestions for the daily program, and physical education receive rather extended treatment.

HILL, PATTY SMITH AND OTHERS. *A Conduct Curriculum for the Kindergarten and First Grade.* New York, Charles Scribner's Sons, 1923. 123 pp.

The curriculum here outlined is the outgrowth of several years experience and experiment of seven teachers under the direction of Professor Hill. This scheme is worked out in terms of the activity of the pupils themselves and covers a wide variety of activities. The book is well illustrated.

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